

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. *Claims 64, 66, 67, and 86-97* are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 64 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a separate component incorporated into the surface*" (line 3).

It would be unclear to one having ordinary skill in the art what the other claimed element, if any, the "*separate component*" is intended to be separate from. Moreover, it would be unclear how a "*separate component*" can be "*incorporated*" into another element.

4. Claim 66 provides for the use of "***the received information***", but, since the claim does not set forth any steps involved in this method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

5. Claim 67 recites the limitation "***the reflector***" (*line 5*). There is insufficient antecedent basis for this limitation in the claim.

6. Claim 92 recites the limitation "***the cones of incident angles***" (*line 1*). There is insufficient antecedent basis for this limitation in the claim.

7. Claim 93 recites the limitation "***interferometric behavior is observed***" (*line 2*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear what earlier claimed element, if any, is providing the claimed "*observation*."

8. Claim 93 recites the limitation "***the cones of incident angles***" (*line 3*). There is insufficient antecedent basis for this limitation in the claim.

9. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

10. The claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

As a courtesy to the Applicant, the examiner has attempted to also make rejections over prior art -- based on the examiner's best guess interpretations of the invention that the Applicant is intending to claim.

However, the indefinite nature of the claimed subject matter naturally hinders the Office's ability to search and examine the application.

Any instantly distinguishing features and subject matter that the Applicant considers to be absent from the cited prior art is more than likely a result of the indefinite nature of the claims.

The Applicant is respectfully requested to correct the indefinite nature of the claims, which should going forward result in a more precise search and examination.

#### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. *Claims 64, 66, 86-93, and 97* are rejected under 35 U.S.C. 103(a) as being unpatentable over *Te Velde (US 4,403,248 A)* in view of *Koehler (US 5,142,414 A)*, *DeMond et al (US 5,079,544 A)*, and *Hruby et al (US 4,125,868 A)*.

Regarding claim 66, ***Te Velde*** discloses an apparatus [*e.g., Fig. 2*] comprising:

- a surface [*e.g., Fig. 2: 10*];
- an electronically controllable display disposed on the surface, the display comprising an array of light interference modulators for displaying selectable appearances, wherein at least one interference modulator comprises
- an absorber layer [*e.g., Fig. 2: 11, 12, 13*],
- a reflector [*e.g., Fig. 2: 14, 16*],
- the absorber layer and the reflector spaced apart by an interferometric cavity [*e.g., Fig. 2: via 15*]; and
- a controller [*e.g., Figs. 4a, 4b: voltage controller; Figs. 6a, 6b, 7a: charge controller*] connected to the display,
- the controller having a port for receiving information defining selectable appearances [*e.g., video information*] for the display from an external source and
- wherein the controller is configured to use the received information to display a selected appearance on the display (*see the entire document, including Column 5, Line 20 - Column 8, Line 50*).

Should it be shown that ***Te Velde*** discloses a *controller*, as instantly claimed, with insufficient specificity:

***Koehler*** discloses an apparatus [*e.g., Fig. 10*] comprising:

- a surface [*e.g., Fig. 3: 110*];

an electronically controllable display disposed on the surface, the display comprising an array of light interference modulators for displaying selectable appearances, wherein at least one interference modulator comprises an absorber layer [e.g., Fig. 5A: 130] (e.g., see Column 7, Lines 25-28), a reflector [e.g., Fig. 5A: 140], the absorber layer and the reflector spaced apart by an interferometric cavity [e.g., Fig. 5A: 2, 3, 4]; and a controller [e.g., Fig. 10: 1000] connected to the display, the controller having a port [e.g., Fig. 5A: 150, 151, 160, 161] for receiving information [e.g., Figs. 5A, 5B:  $V_1$ ,  $V_2$ ] defining selectable appearances [e.g., video picture frames] for the display from an external source [e.g., video cameras] and wherein the controller is configured to use the received information to display a selected appearance on the display (see the entire document, including Column 4, Line 27 - Column 7, Line 2).

***Te Velde*** and ***Koehler*** are analogous art, because they are from the shared inventive field of controlling light interference modulators.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Koehler's*** controller to control ***Te Velde's*** display, so as to provide high-speed control with small sized and low cost circuitry.

Should it be shown that the combination of *Te Velde* and *Koehler* still discloses a *controller*, as instantly claimed, with insufficient specificity:

*DeMond* discloses an apparatus [*e.g.*, *Fig. 1a*] comprising:

a surface [*e.g.*, *Fig. 1b: 16*];

an electronically controllable display disposed on the surface, the display comprising an array of light modulators for displaying selectable appearances, wherein at least one modulator comprises

an absorber layer [*e.g.*, *Figs. 1c, 1d: 17*],

a reflector [*e.g.*, *Figs. 1c, 1d: 32*],

the absorber layer and the reflector spaced apart by a cavity; and

a controller [*e.g.*, *Fig. 3: 144*] connected to the display,

the controller having a port [*e.g.*, *Fig. 3: 142, 152, 162*] for receiving information [*e.g.*, *television signals*] defining selectable appearances for the display from an external source [*e.g.*, *Fig. 3: 140*] and

wherein the controller is configured to use the received information to display a selected appearance on the display (*see the entire document, including Column 6, Line 24 - Column 11, Line 57*).

*Te Velde*, *Koehler*, and *DeMond* are analogous art, because they are from the shared inventive field of controlling light modulators having movable, reflective electrodes.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use *DeMond's* processing circuitry to create appropriate signals for controlling

***Te Velde's*** light interference modulator display, so as to provide television and/or computer graphics display capabilities.

Should it be shown that the combination of ***Te Velde***, ***Koehler***, and ***DeMond*** still discloses a *controller*, as instantly claimed, with insufficient specificity:

***Hruby*** discloses an apparatus [*e.g., Fig. 1*] comprising:

an electronically controllable display [*e.g., Fig. 1: 32*] disposed on the surface, the apparatus comprising

a controller [*e.g., Fig. 1: 10*] connected to the display,

the controller having a port [*e.g., Fig. 1: 28, 30, 36, 38*] for receiving information defining selectable appearances for the display from an external source [*e.g., Fig. 1: 18, 20, 22*] and

wherein the controller is configured to use the received information to display a selected appearance on the display (*see the entire document, including Column 1, Line 65 - Column 6, Line 15*).

***Te Velde*** and ***Hruby*** are analogous art, because they are from the shared inventive field of apparatuses having cathode ray tube display devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Hruby's*** processing circuitry to create appropriate signals for controlling ***Te Velde's*** CRT display (*which would then in turn provide electron beam control of ***Te Velde's*** light interference modulator display*), so as to provide extensive file management capabilities.

Regarding claim 64, **Te Velde** discloses a separate component [e.g., *silica*, *Fig. 7b: 70*] incorporated into the surface; and

an electronically controllable display disposed on the component,

the display comprising an array of light interference modulators,

at least one interference modulator having an absorber layer [e.g., *Fig. 2: 11, 12, 13*],

a reflector [e.g., *Fig. 2: 14, 16*], and

an interference cavity [e.g., *Fig. 2: via 15*] between the absorber layer and the reflector

(see the entire document, including Column 5, Line 20 - Column 8, Line 50).

Regarding claim 86, **DeMond** discloses the controller further comprises:

a processor [e.g., *Fig. 3: 154*] that is configured to communicate with said display,

said processor being configured to process image data; and

a memory device [e.g., *Fig. 3: 150*] that is configured to communicate with said processor (see the entire document, including Column 6, Line 24 - Column 11, Line 57).

**Hruby** discloses the controller further comprises:

a processor [e.g., *Fig. 1: 10*] that is configured to communicate with said display,

said processor being configured to process image data; and

a memory device [e.g., *Fig. 1: 12*] that is configured to communicate with said processor

(see the entire document, including Column 1, Line 65 - Column 6, Line 15).



Regarding claim 87, **DeMond** discloses a driver circuit [e.g., Fig. 3: 160] configured to send at least one signal to said display (*see the entire document, including Column 6, Line 24 - Column 11, Line 57*).

**Hruby** discloses a driver circuit [e.g., Fig. 1: 52, 54, 56] configured to send at least one signal to said display (*see the entire document, including Column 1, Line 65 - Column 6, Line 15*).

Regarding claim 88, **DeMond** discloses the controller is configured to send at least a portion of said image data to said driver circuit (*see the entire document, including Column 6, Line 24 - Column 11, Line 57*).

**Hruby** discloses the controller is configured to send at least a portion of said image data to said driver circuit (*see the entire document, including Column 1, Line 65 - Column 6, Line 15*).

Regarding claim 89, **DeMond** discloses a media transport mechanism [e.g., Fig. 3: 156, 158] configured to send said image data to said processor (*see the entire document, including Column 6, Line 24 - Column 11, Line 57*).

**Hruby** discloses a media transport mechanism [e.g., Fig. 1: 14] configured to send said image data to said processor (*see the entire document, including Column 1, Line 65 - Column 6, Line 15*).

Regarding claim 90, **DeMond** discloses an input device [e.g., Fig. 3: 166, 168] configured to receive input data and to communicate said input data to said processor (*see the entire document, including Column 6, Line 24 - Column 11, Line 57*).

**Hruby** discloses an input device [e.g., Fig. 1: 16, 28] configured to receive input data and to communicate said input data to said processor (*see the entire document, including Column 1, Line 65 - Column 6, Line 15*).

Regarding claim 91, **Te Velde** discloses the array of light interference modulators comprises a stack geometry [e.g., *see Figs. 2, 4a, 4c, 5a, 5b, 6a, 7a, 7b*] configured such that interferometric behavior is exhibited within a cone of incidence angles (*see the entire document, including Fig. 1a; Column 4, Line 58 - Column 5, Line 20*).

**Koehler** discloses the array of light interference modulators comprises a stack geometry [e.g., *see Figs. 1-5A, 6, 7, 9-17*] configured such that interferometric behavior is exhibited within a cone of incidence angles [e.g., *see Figs. 1, 7, 9, 10,* ] *(see the entire document, including Column 4, Line 27 - Column 7, Line 2)*.

Regarding claim 92, **Te Velde** discloses the cones of incident angles assume random orientations (*see the entire document, including Column 6, Lines 9-64 and Column 7, Lines 44-64*).

Regarding claim 93, ***Te Velde*** discloses the array as a whole comprises an overall viewing cone [e.g., Fig. 9: on 92 after 89-91] of incidence angles in which interferometric behavior is observed [e.g., Fig. 8: via 79], the cones of incidence angles of the interferometric modulation elements being narrower [e.g., Fig. 9: before 89-91] than the overall cone of incidence angles (*see the entire document, including Column 5, Line 20 - Column 8, Line 50*).

Regarding claim 97, ***Te Velde*** discloses the at least one interferometric modulator is configured to exhibit a quiescent color in an unactivated state, the quiescent color based at least in part on the geometry of the interferometric cavity (*see the entire document, including Column 5, Line 20 - Column 8, Line 50*).

***Koehler*** discloses the at least one interferometric modulator is configured to exhibit a quiescent color in an unactivated state, the quiescent color based at least in part on the geometry of the interferometric cavity (*see the entire document, including Column 4, Line 27 - Column 7, Line 2*).

13. Claim 94 is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Te Velde*** (US 4,403,248 A), ***Koehler*** (US 5,142,414 A), ***DeMond et al*** (US 5,079,544 A), and ***Hruby et al*** (US 4,125,868 A) as applied to claim 66 above, and further in view of ***Cordova*** (US 5,526,327 A).

Regarding claim 94, the cited prior art does not appear to expressly disclose the surface comprising a portion of a body panel of a vehicle, as instantly claimed.

However, **Cordova** discloses a display surface [*e.g.*, *Fig. 7: 104, 105*] comprises a portion of a body panel of a vehicle (*see the entire document, including Column 7, Lines 22-58*).

**Te Velde**, **Koehler**, **DeMond**, and **Cordova** are analogous art, because they are from the shared inventive field of shutter type displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use **Cordova's** vehicle body panel display techniques with the combined light interference modulator display, so as to stimulate a highway observer's mental facilities when telling time [**Cordova: Column 2, Lines 30-41**] with a display constructed in a simple manner [**Te Velde: Column 1, Lines 43-45**].

14. *Claims 95 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Te Velde (US 4,403,248 A)**, **Koehler (US 5,142,414 A)**, **DeMond et al (US 5,079,544 A)**, and **Hruby et al (US 4,125,868 A)** as applied to claim 66 above, and further in view of **Parker et al (US 5,894,686 A)**.*

Regarding claim 95, the cited prior art does not appear to expressly disclose the surface comprising a sign, as instantly claimed.

However, **Parker** discloses a display surface [*e.g.*, *Fig. 20: 116*] comprises a portion of a sign (*see the entire document, including Column 9, Lines 22-64*).

**Te Velde**, **Koehler**, **DeMond**, and **Parker** are analogous art, because they are from the shared inventive field of panel displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use **Parker's** shoe sign display with the combined light interference modulator display, so as to provide a warning indicator to detect unsafe levels of different environmental conditions such as smoke, temperature, exposure, gas, and/or chemicals [**Parker**: *Column 9, Lines 53-56*] with a display constructed in a simple manner [**Te Velde**: *Column 1, Lines 43-45*].

Regarding claim 96, **Parker** discloses the surface comprises a portion of a shoe (*see the entire document, including Figs. 2, 20; Column 9, Lines 22-64*).

15. Claims 67 and 98-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Te Velde (US 4,403,248 A)** in view of **Koehler (US 5,142,414 A)**.

Regarding claim 67, **Te Velde** discloses an object [*e.g.*, *Fig. 2*] comprising:

a surface [*e.g.*, *Fig. 2: 10*]; and

an array of interferometric modulation elements disposed on the surface,

wherein at least one of the interferometric modulation elements in the array comprises

an absorber layer [*e.g.*, *Fig. 2: 11, 12, 13*],

a reflector layer [e.g., Fig. 2: 14, 16], and  
an interferometric cavity [e.g., Fig. 2: via 15] defined by the absorber layer and the reflector for causing interference modulation of light (*see the entire document, including Column 5, Line 20 - Column 8, Line 50*).

Should it be shown that ***Te Velde*** discloses *causing interference modulation of light*, as instantly claimed, with insufficient specificity:

***Koehler*** discloses an object [e.g., Fig. 10] comprising:  
a surface [e.g., Fig. 3: 110]; and  
an array of interferometric modulation elements disposed on the surface,  
wherein at least one of the interferometric modulation elements in the array comprises an absorber layer [e.g., Fig. 5A: 130] (e.g., *see Column 7, Lines 25-28*),  
a reflector layer [e.g., Fig. 5A: 140], and  
an interferometric cavity [e.g., Fig. 5A: 2, 3, 4] defined by the absorber layer and the reflector for causing interference modulation of light (*see the entire document, including Column 4, Line 27 - Column 7, Line 2*).

***Te Velde*** and ***Koehler*** are analogous art, because they are from the shared inventive field of controlling light interference modulators.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Koehler's*** techniques of causing interference modulation of light with ***Te Velde's*** display, so as to provide high-speed control with small sized and low cost circuitry.

Regarding claim 98, this claim is rejected by the reasoning applied in rejecting claim 67; furthermore, ***Te Velde*** discloses an object [*e.g.*, *Fig. 5b*] comprising:

- a means for supporting [*e.g.*, *Fig. 5b: 43*];
- a plurality of means for interferometric light modulation, disposed on the supporting means,
- wherein at least one of the interferometric modulation means comprises
- a means for absorbing radiation [*e.g.*, *Fig. 5b: 41*],
- a means for reflecting radiation [*e.g.*, *Fig. 5b: 42, 46*], and
- a means for separating [*e.g.*, *Fig. 5b: 47*] located between the absorbing means and the reflecting means (*see the entire document, including Column 5, Line 20 - Column 8, Line 50*).

***Koehler*** discloses an object [*e.g.*, *Fig. 10*] comprising:

- a means for supporting [*e.g.*, *Fig. 5A: 121, 122*];
- a plurality of means for interferometric light modulation, disposed on the supporting means,
- wherein at least one of the interferometric modulation means comprises
- a means for absorbing radiation [*e.g.*, *Fig. 5A: 130*] (*e.g.*, *see Column 7, Lines 25-28*),
- a means for reflecting radiation [*e.g.*, *Fig. 5A: 140*], and
- a means for separating [*e.g.*, *Fig. 5A: 2, 3, 4, 160, 161*] located between the absorbing means and the reflecting means (*see the entire document, including Column 4, Line 27 - Column 7, Line 2*).

Regarding claim 99, ***Te Velde*** discloses the separating means comprises an interferometric cavity [e.g., Fig. 5b: via 47] (see the entire document, including Column 5, Line 20 - Column 8, Line 50).

***Koehler*** discloses the separating means comprises an interferometric cavity [e.g., Fig. 5A: 2, 3, 4] (see the entire document, including Column 4, Line 27 - Column 7, Line 2).

Regarding claim 100, ***Te Velde*** discloses the reflecting means comprises a mirror [e.g., Fig. 5b: 42, 46] (see the entire document, including Column 5, Line 20 - Column 8, Line 50).

***Koehler*** discloses the reflecting means comprises a mirror [e.g., Fig. 5A: 140] (see the entire document, including Column 4, Line 27 - Column 7, Line 2).

Regarding claim 101, ***Te Velde*** discloses the supporting means comprises support arms [e.g., Fig. 5b: 43] (see the entire document, including Column 5, Line 20 - Column 8, Line 50).

***Koehler*** discloses the supporting means comprises support arms [e.g., Fig. 5A: 121, 122] (see the entire document, including Column 4, Line 27 - Column 7, Line 2).



Regarding claim 102, ***Te Velde*** discloses the supporting means comprises a back supporting mechanism [e.g., Fig. 5b: 43] (see the entire document, including Column 5, Line 20 - Column 8, Line 50).

***Koehler*** discloses the supporting means comprises a back supporting mechanism [e.g., Fig. 5A: 121, 122] (see the entire document, including Column 4, Line 27 - Column 7, Line 2).

#### ***Response to Arguments***

16. Applicant's arguments filed on 1 February 2010 have been fully considered but they are not persuasive.

Applicant's arguments with respect to *claims 64, 66, 67, and 86-102* have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/  
Primary Examiner, Art Unit 2629  
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